

accessing the device for detecting the battery power level if the handheld computer is in the sleep mode;

responsive to detecting the battery power level, comparing the detected battery power level to a first predetermined power level that is selected from a group of power levels consisting of (i) a power level that occurs on or about one week prior to the handheld computer losing data stored in a memory of the handheld computer, (ii) a power level that is based on measuring an ambient temperature of the handheld computer, and (iii) a power level that is based on about 3.71 volts; and maintaining the handheld computer in the sleep mode if the detected battery power level is less than the first predetermined power level.

2. The method of claim 1, wherein accessing the device for detecting the battery power level is carried out by an analog-to-digital converter device.

3. The method of claim 1, wherein maintaining the sleep mode comprises: receiving an input signal for turning on power in the handheld computer; responding to the input signal by determining whether the handheld computer is in a sleep mode; and responsive to determining that the handheld computer is in a sleep mode, masking interrupt signals for powering one or more applications and devices of the handheld computer.

4. The method of claim 3, wherein; masking interrupt signals for powering the one or more applications and devices of the handheld computer includes masking interrupt signals for powering one or more applications and devices which provide a feedback to the user that the handheld computer is operational.

⁵
~~8.~~ The method of claim ⁴~~7~~, wherein masking interrupt signals for powering the one or more applications and devices which provide a feedback to the user that the handheld computer is operational includes masking interrupt signals for powering a display device.

⁶
~~9.~~ The method of claim ⁴~~7~~, wherein masking interrupt signals for powering the one or more applications and devices which provide a feedback to the user that the handheld computer is operational includes masking interrupt signals for powering a communications device.

⁷
~~18.~~ A method for managing power in a handheld computer having a sleep mode setting, the handheld computer comprising a battery, at least one input device for turning the handheld computer on, and at least one device for detecting a battery power level, the method comprising:

replenishing the primary energy source;

receiving an input signal to turn the handheld computer on;

determining whether the handheld computer is in the sleep mode;

accessing the device for detecting the battery power level if the handheld computer is in the sleep mode;

responsive to detecting the battery power level, comparing the detected battery power level to a first predetermined power level;

comparing the detected battery power level to a second predetermined power level if the detected battery power level is greater than the first predetermined power level; and exiting the sleep mode when the detected battery power level is greater than the second predetermined power level.

⁸
~~19.~~ The method of claim ⁷~~18~~, wherein the battery of the handheld computer is a rechargeable battery, replenishing the primary energy source comprising:

recharging the rechargeable battery.

⁹
~~20.~~ The method of claim ⁷~~18~~, wherein the battery of the handheld computer is a non-rechargeable battery, replenishing the primary energy source comprising:
replacing the non-rechargeable battery.

¹⁰
~~21.~~ The method of claim ⁷~~18~~, wherein the exiting the sleep mode occurs when the detected battery power level is greater than a second predetermined voltage of on or about 0.10 volts higher than the first predetermined voltage.

¹¹
~~22.~~ The method of claim ⁷~~18~~, wherein the exiting the sleep mode occurs when the detected battery power level is greater than a second predetermined voltage of on or about 3.81 volts.

¹²
~~23.~~ An apparatus for reserving power in a handheld computer, the handheld computer having a sleep mode setting, a battery as a primary energy source, at least one input device for turning on power, and at least one device for detecting a battery power level, the handheld computer including a subsystem, wherein the subsystem comprises a processor coupled to a interrupt controller and a memory controller, the interrupt controller coupled to a memory, the memory including a sleep mode software and a residual energy manager module, and wherein the subsystem is coupled to the device for detecting a battery power level, the apparatus comprising:

responsive to receiving an input signal to turn device power on, means for accessing the sleep mode setting;

responsive to determining that the handheld computer is in the sleep mode, means for accessing the device for detecting the battery power level; and

responsive to the detected battery power level, means for maintaining the sleep mode or exiting the sleep mode;

responsive to detecting a battery power level, means comparing the detected battery power level to a first predetermined power level; and
responsive to determining the detected battery power level is less than the first predetermined power level, means for maintaining the handheld computer in the sleep mode;
wherein the first predetermined power level is set at a level which provides on or about seven days of a normal usage of the handheld computer prior to the handheld computer losing data stored in a memory of the handheld computer.

¹³
~~24~~ The apparatus of claim ¹²~~23~~, wherein:

the device for detecting the battery power level includes an analog-to-digital converter.

¹⁸
~~28~~ An apparatus for reserving power in a handheld computer, the handheld computer having a sleep mode setting, a battery as a primary energy source, at least one input device for turning on power, and at least one device for detecting a battery power level, the handheld computer including a subsystem, wherein the subsystem comprises a processor coupled to a interrupt controller and a memory controller, the interrupt controller coupled to a memory, the memory including a sleep mode software and a residual energy manager module, and wherein the subsystem is coupled to the device for detecting a battery power level, the apparatus comprising:

responsive to receiving an input signal to turn device power on, means for accessing the sleep mode setting;

responsive to determining that the handheld computer is in the sleep mode, means for accessing the device for detecting the battery power level; and

responsive to the detected battery power level, means for maintaining the sleep mode or exiting the sleep mode;

responsive to detecting a battery power level, means comparing the detected battery power level to a first predetermined power level; and
responsive to determining the detected battery power level is less than the first predetermined power level, means for maintaining the handheld computer in the sleep mode;
a thermal sensor; and
means for setting the first predetermined power level based on the thermal sensor detecting an ambient temperature of the handheld computer.

24
29.

B1
An apparatus for reserving power in a handheld computer, the handheld computer having a sleep mode setting, a battery as a primary energy source, at least one input device for turning on power, and at least one device for detecting a battery power level, the handheld computer including a subsystem, wherein the subsystem comprises a processor coupled to a interrupt controller and a memory controller, the interrupt controller coupled to a memory, the memory including a sleep mode software and a residual energy manager module, and wherein the subsystem is coupled to the device for detecting a battery power level, the apparatus comprising:

responsive to receiving an input signal to turn device power on, means for accessing the sleep mode setting;

responsive to determining that the handheld computer is in the sleep mode, means for accessing the device for detecting the battery power level; and

responsive to the detected battery power level, means for maintaining the sleep mode or exiting the sleep mode;

responsive to detecting a battery power level, means comparing the detected battery power level to a first predetermined power level; and

responsive to determining the detected battery power level is less than the first predetermined power level, means for maintaining the handheld computer in the sleep mode;

wherein the first predetermined power level is on or about 3.71 volts.

¹⁴
~~30~~. The apparatus of claim ¹²~~23~~, further comprising:

responsive to receiving an input signal for turning on power in the handheld computer, means for determining whether the handheld computer is in a sleep mode; and

responsive to determining that the handheld computer is in a sleep mode, means for operating the interrupt controller to mask interrupt signals for powering one or more applications and devices of the handheld computer.

¹⁵
~~31~~. The apparatus of claim ¹⁴~~30~~, wherein the one or more applications and devices of the handheld computer includes an application or device which provides a feedback to the user that the handheld computer is operational.

¹⁶
~~32~~. The apparatus of claim ¹⁵~~31~~, wherein the one or more applications and devices of the handheld computer includes a display device.

¹⁷
~~33~~. The apparatus of claim ¹⁵~~31~~, wherein the one or more applications and devices of the handheld computer includes a communications device.

¹⁹
~~42~~. The apparatus of claim ¹⁸~~28~~, wherein:

the device for detecting the battery power level includes an analog-to-digital converter.

²⁰
~~43~~. The apparatus of claim ¹⁹~~28~~, further comprising:

responsive to receiving an input signal for turning on power in the handheld computer, means for determining whether the handheld computer is in a sleep mode; and

responsive to determining that the handheld computer is in a sleep mode, means for operating the interrupt controller to mask interrupt signals for powering one or more applications and devices of the handheld computer.

²¹
~~44~~ B1 The apparatus of claim ²⁰~~43~~, wherein the one or more applications and devices of the handheld computer includes an application or device which provides a feedback to the user that the handheld computer is operational.

²²
~~45~~ The apparatus of claim ²¹~~44~~, wherein the one or more applications and devices of the handheld computer includes a display device.

²³
~~46~~ The apparatus of claim ²¹~~44~~, wherein the one or more applications and devices of the handheld computer includes a communications device.

²⁵
~~47~~

²⁴

The apparatus of claim ~~29~~, wherein:

the device for detecting the battery power level includes an analog-to-digital converter.

²⁶
~~48~~

~~The apparatus of claim 29, further comprising:~~

responsive to receiving an input signal for turning on power in the handheld computer,

means for determining whether the handheld computer is in a sleep mode; and

responsive to determining that the handheld computer is in a sleep mode, means for

operating the interrupt controller to mask interrupt signals for powering one or

more applications and devices of the handheld computer. ²⁷~~49~~

The apparatus

of claim ~~48~~, wherein the one or more applications and devices of the handheld

computer includes an application or device which provides a feedback to the user

~~that the handheld computer is operational.~~

²⁸
~~50~~

²⁷

The apparatus of claim ~~49~~, wherein the one or more applications and devices of
the handheld computer includes a display device.

²⁹
~~51~~

²⁷

The apparatus of claim ~~49~~, wherein the one or more applications and devices of
the handheld computer includes a communications device.